



(12) **United States Patent**
Kokot, Jr. et al.

(10) **Patent No.:** **US 9,912,183 B2**
(45) **Date of Patent:** **Mar. 6, 2018**

(54) **JUMP STARTER**

7/0036 (2013.01); H02J 7/0047 (2013.01);
H02J 2001/006 (2013.01); H02J 2001/008
(2013.01)

(71) Applicant: **VanAir Manufacturing, Inc.**, Michigan
City, IN (US)

(72) Inventors: **Ralph Kokot, Jr.**, Crown Point, IN
(US); **Kai Justice**, Wheatfield, IN (US);
Mark Alan Firnhaber, LaPorte, IN
(US); **John D. Graun**, Hobart, IN
(US); **James Aaron Morton**, Westville,
IN (US)

(73) Assignee: **Vanair Manufacturing, Inc.**, Michigan
City, IN (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 137 days.

(21) Appl. No.: **15/067,704**

(22) Filed: **Mar. 11, 2016**

(65) **Prior Publication Data**

US 2016/0329731 A1 Nov. 10, 2016

Related U.S. Application Data

(60) Provisional application No. 62/133,124, filed on Mar.
13, 2015.

(51) **Int. Cl.**
H02J 7/00 (2006.01)
B60L 11/18 (2006.01)
B60L 11/00 (2006.01)
H02J 7/32 (2006.01)
H02J 7/34 (2006.01)
H02J 1/00 (2006.01)

(52) **U.S. Cl.**
CPC **H02J 7/0054** (2013.01); **B60L 11/005**
(2013.01); **B60L 11/1818** (2013.01); **H02J**
7/32 (2013.01); **H02J 7/345** (2013.01); **H02J**

(58) **Field of Classification Search**

CPC B60L 11/005; B60L 11/1818; H02J
2001/006; H02J 2001/008; H02J 7/0036;
H02J 7/0047; H02J 7/0054; H02J 7/32;
H02J 7/345

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2002/0041174 A1* 4/2002 Purkey F02N 11/14
320/103
2009/0008374 A1* 1/2009 Fosbinder B23K 9/1006
219/130.21
2013/0154543 A1* 6/2013 Richardson H02J 7/007
320/104

* cited by examiner

Primary Examiner — Vuthe Siek

(74) *Attorney, Agent, or Firm* — R. Tracy Crump

(57) **ABSTRACT**

A jump starter unit for starting large vehicles and other equipment using jumper cable at lengths up to fifty (50) feet. The jump starter includes a high output (200-300 amp) alternator and a large (2000 Farad) capacitor. The alternator is also used to maintain the capacitor's charge when the boost charge is not needed. The alternator and capacitor are integrated into an electrical system that includes an electronic control and a plurality of relays that provide the various charging and boost functions of the unit. In certain embodiments, the jump starter unit may take the form of a portable or mobile self contained apparatus having its own combustion to drive the high output alternator. In other embodiments, the jump starter unit may be integrated into a service vehicle, such as a tow truck or utility vehicle, and utilize the vehicle's engine to drive the jump starter's high output alternator.

19 Claims, 4 Drawing Sheets

